

**WHAT IS CLAIMED IS:**

1. A method for jointly controlling the data rate and power level of data transmission across a communication channel, comprising:

providing a plurality of transmit parameter pairs that each include information indicative of a data rate and information indicative of a power level;

transmitting at the data rate and power level indicated by a selected one of the transmit parameter pairs; and

sequentially selecting different ones of the transmit parameter pairs to be the selected transmit parameter pair, including determining which of the transmit parameter pairs will be the next selected transmit parameter pair based on the currently selected transmit parameter pair and a communication quality condition associated with the communication channel.

2. The method of claim 1 wherein the communication quality condition includes a signal to noise ratio.

3. The method of claim 1 wherein the communication quality condition includes a signal to interference noise ratio.

4. The method of claim 1 wherein the communication quality condition includes a packet error rate.

5 5. The method of claim 1 wherein the communication quality condition includes a function of a signal to noise ratio and a signal to interference noise ratio.

6. The method of claim 1 wherein the communication channel is a wireless communication channel.

7. The method of claim 1 wherein the communication channel is a Bluetooth communication channel.

8. The method of claim 1 wherein the communication channel is an IEEE  
15 802.11b communication channel.

9. The method of claim 1 wherein the providing step includes providing an ordered list of the plurality of transmit parameter pairs.

10. The method of claim 9 wherein the ordered list orders the data rate for a first group of the transmit parameter pairs from lowest to highest, the data rate for each of the transmit parameter pairs of the first group paired with a common maximum power level.

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11. The method of claim 10 wherein the ordered list further orders the power level for a second group of the transmit parameter pairs from highest to lowest, the power level for each of the transmit parameter pairs of the second group paired with a common maximum data rate.

12. The method of claim 9 wherein the ordered list includes a plurality of adjacent integer indices respectively associated with the plurality of transmit parameter pairs.

13. The method of claim 12 wherein the sequentially selecting step includes stepping incrementally through the indices.

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14. The method of claim 1 wherein the determining step includes evaluating the communication quality condition based on the currently selected transmit parameter pair.

15. An apparatus for jointly controlling the data rate and power level of data transmission across a communication channel, comprising:

5 a storage portion for storing a plurality of transmit parameter pairs that each include information indicative of a data rate and information indicative of a power level, said storage portion having an output for outputting a selected one of the transmit parameter pairs;

a communication interface coupled to said storage portion output for transmitting at the data rate and power level indicated by the selected transmit parameter pair; and

15 a controller coupled to said storage portion for sequentially selecting different ones of the transmit parameter pairs to be the selected transmit parameter pair that is output from said storage portion, said controller including an input for receiving information indicative of a communication quality condition associated with the communication channel, and said controller operable for determining which of the transmit parameter pairs will be the next selected transmit parameter pair based on the communication quality condition and the currently selected transmit parameter pair.

16. The apparatus of claim 15 wherein the storage portion is an ordered list.

17. The apparatus of claim 16 wherein the ordered list orders the data rate for a first group of the transmit parameter pairs from lowest to highest, the data rate for each of the transmit parameter pairs of the first group paired with a common maximum power level.

18. The apparatus of claim 17 wherein the ordered list further orders the power level for a second group of the transmit parameter pairs from highest to lowest, the power level for each of the transmit parameter pairs of the second group paired with a common maximum data rate.

19. The apparatus of claim 16 wherein the ordered list includes a plurality of adjacent integer indices respectively associated with the plurality of transmit parameter pairs.

20. The apparatus of claim 19 wherein the controller steps incrementally through the indices.

21. The apparatus of claim 15 wherein the controller evaluates the communication quality condition based on the currently selected transmit parameter pair.

22. The apparatus of claim 15, provided in one of a Bluetooth and an IEEE  
5 802.11b transmitter.

23. A communication system, comprising:  
a transmitter for transmitting data on a communication channel;  
a receiver for receiving via said communication channel the data transmitted  
by said transmitter; and  
said transmitter including an apparatus for jointly controlling the data rate and  
power level at which the data is transmitted on the communication channel, including a  
storage portion for storing a plurality of transmit parameter pairs that each include  
information indicative of a data rate and information indicative of a power level, said storage  
portion having an output for outputting a selected one of the transmit parameter pairs, a  
15 communication interface coupled to said storage portion output for transmitting at the data  
rate and power level indicated by the selected transmit parameter pair, and a controller  
coupled to said storage portion for sequentially selecting different ones of the transmit

parameter pairs to be the selected transmit parameter pair that is output from said storage  
portion, said controller including an input for receiving information indicative of a  
communication quality condition associated with the communication channel, and said  
controller operable for determining which of the transmit parameter pairs will be the next  
5 selected transmit parameter pair based on the communication quality condition and the  
currently selected transmit parameter pair.